

**Request for Reconsideration:**

Applicants are amending Para. [0012.2] and [0014] to replace references to **Fig. 2** with references to **Fig. 3**. Further, Applicants are replacing the improperly labeled **Fig. 2** submitted in the Responsive Amendment filed on August 10, 2004. Applicants also have canceled claims 13-36, without prejudice. Those claims were directed to an unelected invention. No new matter is added by the foregoing amendments, and these amendments are fully supported by the specification. Applicants respectfully request that the Examiner enter the foregoing amendments and reconsider the above-captioned patent application in view of the foregoing amendments and the following remarks.

**Remarks:**

1. **Objections and Rejections**

The Office Action objects to the drawings and the specification because Applicants improperly labeled the figure submitted in the Responsive Amendment filed August 10, 2004. In view of the foregoing amendments, Applicants respectfully traverse these objections.

Applicants acknowledge with appreciation that in view of Applicants' earlier amendments and remarks, the Examiner has withdrawn the rejections of claims 1, 2, and 5-7 under 35 U.S.C. § 102(b), as allegedly anticipated by U.S. Patent No. 3,590,917 to Huber *et al.* ("Huber"). Nevertheless, claims 1, 2, and 4-7 still stand rejected under 35 U.S.C. § 103(a), as allegedly rendered obvious by U.S. Patent No. 5,800,673 to Okuda *et al.* ("Okuda") in view of Huber. Moreover, claims 8 and 9 now stand rejected under 35 U.S.C. § 103(a), as allegedly rendered obvious by Okuda in view of Huber, as applied to claim 1, and further in view of U.S. Patent No. 4,428,418 to Beasley; and claim 10 now stands rejected under 35 U.S.C. § 103(a), as allegedly rendered obvious by Okuda in view of Huber, as applied to claim 1, and further in view of U.S. Patent No. 4,804,713 to Akiyama. The Office Action has made these rejections **final**.

2. **Obviousness Rejections.**

As noted above, claims 1, 2, and 4-7 stand rejected as allegedly rendered obvious by Okuda in view of Huber; claims 8 and 9 stand rejected as allegedly rendered obvious by Okuda in view of Huber, as applied to claim 1, and further in view of Beasley; and claim 10 stands rejected as allegedly rendered obvious by Okuda in view of Huber, as applied to claim 1,

and further in view of Akiyama. In order for the Office Action to establish a prima facie case of obviousness, at least three criteria must be met. First, there must be some suggestion or motivation, either in the combined references or in the knowledge generally available to one of ordinary skill in the art, to combine the cited references in the manner proposed by the Office Action. Second, the prior art references must disclose or suggest all the claim limitations. Third, there must be a reasonable expectation of success. MPEP 2143. For the reasons set forth below, Applicants respectfully disagree with these obviousness rejections.

a. Claims 1, 2, and 4-7.

As noted above, the Office Action rejects claims 1, 2, and 4-7 as allegedly rendered obvious by Okuda in view of Huber. Applicants respectfully disagree. Specifically, claim 1, as amended, describes a heat exchanger comprising “a first aluminum member coated with a first portion of a resin, and a second aluminum member coated with a second portion of said resin, wherein said first aluminum member is fixed to said second aluminum member via said first portion of said resin and said second portion of said resin, and wherein said first aluminum member is separated from said second aluminum member by said first portion of said resin and said second portion of said resin.” (Emphasis added.) As such, the resin both fixes the aluminum members to each other and separates the aluminum members from each other.

In response to the previous anticipation rejections of claim 1 based on Okuda, Applicants noted that Okuda fails to disclose or suggest that the first aluminum member is fixed to the second aluminum member via the resin. Okuda describes a heat exchanger including a plurality of tubular elements 1. Tubular elements 1 are fixed to each other by “arranging two dish-like core plates 6 into an inside-to-inside relation and subsequently brazing them at their peripheries 6a to be integral with each other.” Okuda, Column 8, Lines 53-56 (emphasis added). Specifically, a “brazing agent layer is applied by a cladding technique so that the core plates 6 are easily brazed together.” Id. at Column 8, Lines 59-61. Each core plates 6 includes a rib 7, and “a plurality of straight drainage canals 7a are defined by the inwardly protruding recessed ribs 7.” Id. at Column 10, Lines 20-21. Moreover, “in order to improve the drainage of condensed water, it is desirable and effective that the straight canals 7a are covered with a resin coating (S).” Id. at Column 10, Lines 21-24. As such, the purpose of the resin coating (S) applied to straight drainage canals described in Okuda is to increase drainage. The resin coating

(S) also may be applied to the surfaces of tubular elements 1. The heat exchanger is assembled by brazing, then submerged in the resin (S), and then subjected to a baking process. Id. at Column 13, Lines 43-57.

In addition, Okada describes the application of a hydrophilic resin to some portions of the plate surfaces and the exclusion of such resin from other surfaces, in particular, the exclusion of resin from surfaces to be soldered. E.g., Okada, Abstract; Column 13, Lines 43-57; **Fig. 5**. Moreover, Okada states that

the hydrophilic resin coating employed herein to seal the outer surfaces of each tubular element and each fin is required to comprise . . . polyvinyl alcohol resin as its main component, polyamide and/or polyvinyl pyrrolidone resins as its hydrophilic agent blended with the main component. In addition to them, the resin coating should further contain a film hardener contained at a concentration sufficient to harden the resin coating but not so excessively as to react with the hydrophilic groups in molecules of the resin and impair its hydrophilic property, and a surfactant for stabilizing the bath of a resin composition so as not to bubble.

Okada, Column 6, Lines 16-27 (emphasis added). Thus, Okada describes its resin coating in specific detail.

The Office Action contends that the thermosetting resins used by Huber are suitable for the hydrophilic purposes described by Okada. Nevertheless, Okada has “required” the inclusion of certain components in its hydrophilic resin, and the Office Action has failed to demonstrate that those components are present in Huber’s resins. As noted above, Okada requires the presence of polyvinyl alcohol as the “main component” of its resin. Polyvinyl alcohol resin is not a thermosetting resin.<sup>2</sup> Thermosetting resins form durable, highly-crosslinked structures upon hardening, such as that formed by the epoxy resins described in Huber. In contrast, polyvinyl alcohol resins tend to form thermoplastic resins. A thermoplastic resin is not crosslinked to any significant extent, if at all. Further, thermoplastic resins, such a polyvinyl alcohol resins, tend to comprise long strands of polymers. When heated, these strands of polymers readily move past one another, making the resin plastic. Although some polyvinyl alcohol resins are not considered thermoplastic, that is because they have degradation

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<sup>2</sup> In claims 5 and 6, Applicants state that the first and second portions of the resin may be a thermoplastic resin or a thermosetting resin, respectively. Nevertheless, Applicants do not describe or claim the use of polyvinyl alcohol resins.

temperatures lower than their melting points. Neither thermoplastic nor thermal-degradable polyvinyl alcohol resins, however, are thermosetting.

Both thermoplasticity and thermal degradation are at odds with the structural properties required for Huber's synthetic resins. Huber's resins require sufficient mechanical strength and structural stability to hold parts together. Highly crosslinked thermosetting resins, such as epoxies, are well suited for that purpose. In addition, thermosetting resins generally retain their mechanical properties well at elevated temperatures. In contrast, polyvinyl alcohol resins generally are unsuitable for use as structural components because such resins generally lack mechanical strength. This is particularly true at higher temperatures, at which such resins may become more plastic or even degrade. Plasticity or chemical breakdown render polyvinyl alcohol resins still more pliable, and, thus, even more unsuitable to the purposes described by Huber.

"If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified[, i.e., Okada's invention], then the teachings of the references are not sufficient to render the claims *prima facie* obvious." MPEP 2143.01 pg 2100-132 (8th ed., Rev. 2, May 2004)(emphasis added). Although the Office Action alleges that "the resin material of Huber et al. is similar to the claimed resin," this is not sufficient to justify the combination of Okada with Huber and does not establish a *prima facie* case of obviousness with respect to claim 1. Office Action, Page 5, Lines 4-5. Therefore, Applicants maintain that the Office Action fails to demonstrate that the combination of Okada with Huber establishes a *prima facie* case of obviousness.

In summary, the polyvinyl alcohol resins of Okada are very different from the resins described in Huber. Therefore, Applicants maintain that the Office Action fails to demonstrate a motivation or suggestion to combine the teachings of Okada and Huber to achieve the invention of Applicants' claim 1. Moreover, modifying Okada to replace its polyvinyl alcohol resins with the thermosetting resins described in Huber would change the principle of Okada's operation and/or render Okada unsuitable for its intended purpose contrary to MPEP 2143.01.

Claims 2 and 4-7 depend from claim 1. "If an independent claim is non-obvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious." MPEP 2143.03 pg

2100-133 (8th ed., Rev. 2, May 2004)(citations omitted). Therefore, in view of the foregoing remarks concerning the obviousness rejection to claim 1, Applicants maintain that the rejections to claims 2 and 4-7 are untenable and respectfully request that the Examiner withdraw the obviousness rejection of claims 2 and 4-7.

b. Claims 8-10.

Each of claims 8-10 depends directly from claim 1 and limits the description of claim 1 by identifying a particular type of resin. Because Huber focuses on thermosetting resins, or at the very least requires a resin able to perform structural functions, a nylon resin (claim 9), or a vinylidene fluoride resin (claim 10) would not be suitable for use in the invention of Huber. Both of these types of resins generally are thermoplastic, rather than thermosetting. Thus, in view of the teachings of Huber, the Office Action fails to demonstrate that a person skilled in the art would expect either of these resins to function well for any structural purpose. Further, in view of the requirements of MPEP 2143.01, Applicants maintain that the Office Action fails to demonstrate that either resin meets Okada's very specific requirements for a suitable hydrophilic resin, especially, that suitable resins contain polyvinyl alcohol as the "main component."

After reviewing Huber, Applicants have found nothing in Huber that would prevent the modification of Huber to use a polyester resin (claim 8), so long as it is a thermosetting form of polyester and not a thermoplastic form, as Huber's adhesive. Nevertheless, as noted above, the Office Action fails to demonstrate that any of the resins of claims 8-10 fulfills Okada's requirements for a hydrophilic resin. Further, the Office Action fails to demonstrate that the polyester resin suggested by the cited references contain (or should be modified to contain) polyvinyl alcohol as the "main component." Thus, the proposed modification to Okada to include the use of the resins taught by these references is improper. MPEP 2143.01. Therefore, to the extent that neither Okada in view of Huber alone or in combination with the teachings of Beasley or Akiyama or discloses (or suggests) each and every one of the elements of the pending claim 1, the Office Action fails to demonstrate a *prima facie* case of obviousness with respect to claims 8-10. MPEP 2143.03.

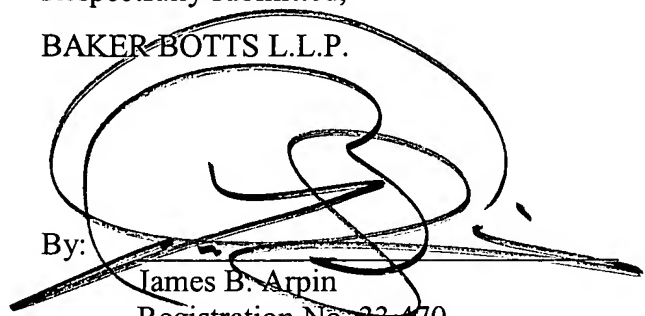
**Conclusion:**

Applicants respectfully submit that this application, as amended, is in condition for allowance, and such disposition is earnestly solicited. If the Examiner believes that an

interview with Applicants' representatives, either in person or by telephone, would expedite prosecution of this application, we would welcome such an opportunity.

Respectfully submitted,

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Enclosures

**Amendments to the Drawings:**

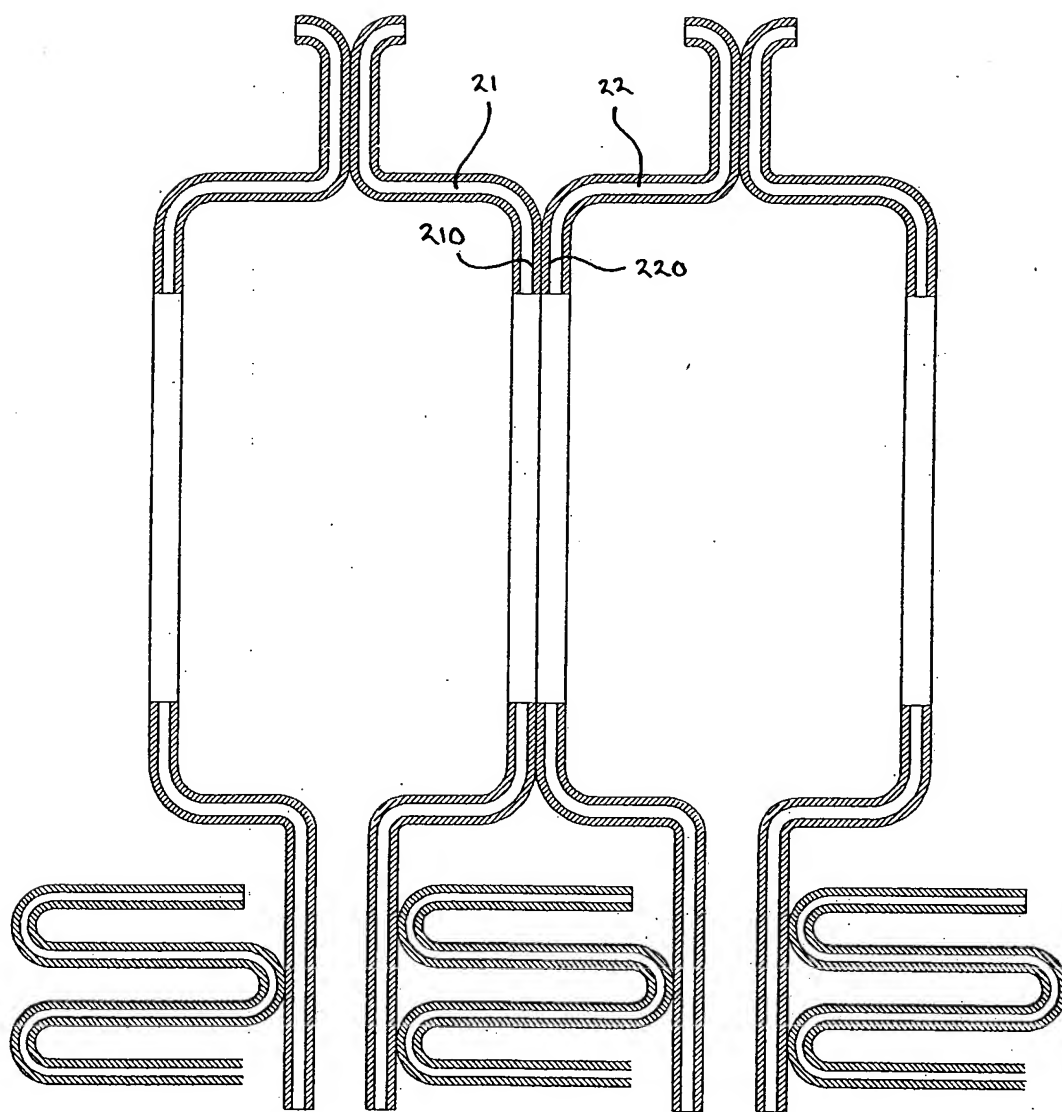
The attached sheet of drawings rennumbers **Fig. 2**, which was submitted in the Responsive Amendment filed August 10, 2004, as **Fig. 3**. This sheet, which includes renumbered **Fig. 3**, replaces the original sheet including **Fig. 2**.

Attachment: Replacement Sheet

Annotated Sheet Showing Changes (changes shown in red ink)



Appl'n No. 10/053,582  
Amd't Dated Feb. 1, 2005  
Reply to Office Action of Dec. 9, 2004  
Annotated Sheet Showing Changes



**Fig. 3**

← RENUMBER  
FIG. 2 SUBMITTED  
08/10/04, AS FIG. 3